

Digital Video Surveillance System

User Manual

- ※ The picture might differ according to the specification and model.
- ※ Contents of this user manual are protected under copyrights and computer program laws.

HE-Series DVR

1st Edition : 28 Oct 2013
2nd Edition : 3 Dec 2013
3rd Edition : 20 Jun 2014

Thank You !

Before operating the system, please read this User Manual and retain it for future reference.

WARNING

TO REDUCE FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THE UNIT TO RAIN OR MOISTURE.

The installation should be made by a qualified service person
and conformed to all local codes.

Cautions

Read Before System Operation

Follow these details to prevent material damage or personal injury.

Signs of Caution and Warning



Warning: This sign indicates that the user could die or be seriously wounded if not used or installed properly.



Caution: This sign indicates that the user could be wounded or could expect property damage if not used or installed properly.



Warning: Do not expose the product to fog, rain or too much humid to decrease danger from electric shock or fire.

General Warning



Warning

1. Use the power cord, which is supplied or recommended by the supplier, or it may cause fire.
2. Do not disassemble or reassemble the product.
It may cause malfunction or fire.
3. Enquire to your vendor for repair.
It may cause electric shock or fire if the repair is not done properly.
4. Do not touch the product with wet hands.
It may cause malfunction or electric shock.
5. Product installation must be ensured to a professional for product installation, or it may cause malfunction, electric shock or fire.
6. Ground applies to video products equipped with a 3-wire grounding type plug having a third (grounding) pin.
This plug only fits into a grounding-type power outlet.
If grounding is not done, it may cause malfunction or electric shock.
7. Ground connection must not touch gas pipe, water pipe or telephone line.
If grounding is not done properly, it may cause electric shock.
8. Prevent metallic foreign substance from going inside the product.
It may cause malfunction or electric shock.
9. Do not spray insecticide or flammable spray while driving.
It may cause fire.
10. Place the system in a open place where air ventilation is guaranteed, or it may cause over-heating and seriously damage the system to be fired.
11. Prevent water from instilling inside electrical parts.
Clean with a dry towel or malfunction or electric shock could result.



Caution

1. Use the power cord, which is supplied or recommended by the supplier.
The internal fan rotates at high speed and may cause an accident.
2. Do not drop, give strong vibration, or shock to the product.
It may cause malfunction.
3. The air inhaler of the front panel and air outlet of the back panel must not be blocked during installation.
The internal temperature of the product would be greater than allowable and could cause malfunction or fire.
4. Do not touch the product or the power cord when there is thunder.
It may cause electric shock.
5. Do not install the product near or on top of heating source.
The internal temperature of the product would be greater than allowable and could cause malfunction or fire.
6. Do not install the product on inclined or unstable location or where vibration could be committed.
It may cause malfunction.

Cautions about the Power



Warning

1. Must use the outlet of the grounding to connect the power cord, or
it may cause fire.
2. Do not connect on the middle of power cord or use extension cord.
It may generate heat or cause fire.
3. Do not touch the power cord with wet hands.
It may cause electric shock.
4. Keep power cord dry and protect from humidity.
It may generate heat or cause fire. The power cord is not waterproof.
5. Hold the body of the plug while removing the power plug.
Do not pull the power cord. Damage to the power cord may generate heat or cause fire.
6. Check the power plug regularly.
Humidity and moderation in smoking may cause fire.
7. Remove power cord from outlet when product is not used for a long time.
It may cause short-circuit or electric shock.



Caution

1. Do not turn off the power by removal of the power plug.
To turn off the power, click the power button from the front panel.
When the system stops abnormally, the power button might not work. Click power button for 5 full seconds to turn power off.
2. Do not cut off the power artificially, or give shock or vibration to unit while the hard disk is activating.
It may cause hard disk failure or loss of data.



Remarks

- ※ Pictures and buttons are subject to be changed or modified up to different models.
- ※ Function or configuration is subject to be changed or modified without prior notice for improvement of the product.




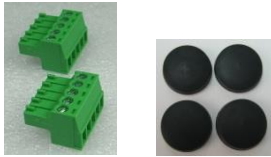
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1. Getting Started

1.1 Checking Supplied Items

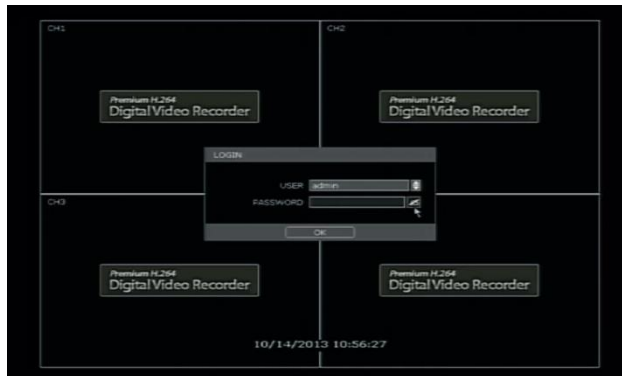
Make sure that you have following items supplied with your DVR. If any of these items is missing or damaged, notify your vendor immediately. Keep the packing utilities for moving or storage purposes afterwards.

Items	Photo	Quantity
User Manual and Remote Software	 <p>(*) Quick Manual and CD</p>	1 Set
12V D/C Adaptor and Power Cable		1 Set
IR Remote Controller	 <p>or</p> <p>(*) Type of controller may differ depending on the DVR model and can be replaced by USB Mouse.</p>	1 Set
Terminal Block and Rubber Mount	 <p>(*) Packed goods may differ depending on the DVR model.</p>	1 Pair (2 Pieces) 1 Set (4 Pieces)

1.2 System Startup

After connecting all peripheral devices, connect power cord to the DVR for system startup.


Input USER and PASSWORD for login after turning on the system. The factory default of user and password are “ADMIN” and “1234” respectively. Admin user is to fully control the entire DVR system.



-
- Note** 1) Do not forget the administrator's password that was set for the first time. In case the password is forgot, contact your local dealer for help.
2) Refer to the “Section 4.1.2 User” for AUTO LOGIN and AUTO LOGOFF.
-

Caution It may take a few minutes to startup the system after turning on the power, in case the user sets the network configuration as DHCP mode but under the situation that there is no DHCP server in the network or the network is not connected.

1.3 System Shutdown

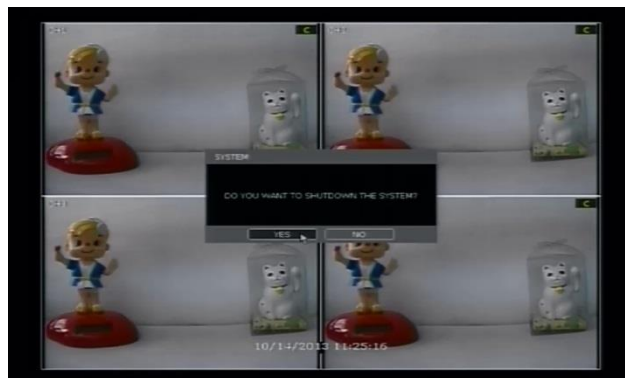
To turn off the power, Click “EXIT ” button in the tool bar and then click “SHUTDOWN” in the pop-up screen as below. Do not pull off the power by pulling the power plug.



Input the password and click “OK” to shut down the system.




And then, click “YES” to confirm shutdown in the pop-up screen as below.



Note User can input password by virtual keyboard, or front numeric buttons (if available).

2. Startup Wizard

At the first startup, Startup Wizard screen will pop up, automatically.
User can make primary setting by simply following the steps in the Startup Wizard.

User can open the Startup Wizard screen at any time by clicking “Startup Wizard ” button in the tool bar.

2.1 Language

User can select the language according to the country or user's preference.
DVR supports various languages. If you cannot find your preferred language, please contact your dealer in your area accordingly.



Note If “DISPLAY ON SYSTEM STARTUP” is selected, Startup Wizard will pop up every time the system is started.

2.2 Date/Time

User can make various settings such as time zone selection, DST (Daylight Saving Time) and time sync mode.



TIME SYNC MODE

There are three types of time sync mode.

- **Server Mode**
The operating DVR is set as a Time Sync Server, which can synchronize the time clock of another DVR(s) connected over the same network environment.
- **Client Mode**
The operating DVR is set as one of the client DVR(s). Input the IP No of designated DVR or Remote Software P/C (CMS) as a Time Sync Server in "SYNC SERVER", then DVR time clock is synchronized with Time Sync Server by interval time set in "TIME SYNC CYCLE".
- **NTP Mode**
NTP server is one of standard time servers available on Internet and it is recommended to use "pool.ntp.org". If you want to activate this mode, you have to correctly set the TIME ZONE of your local area and then click SYNC NOW.

2.3 HDD FORMAT

User can select "Overwrite" or "Stop recording" when HDD becomes full and also can easily format new HDD or existing HDD by ticking in the check box.



HDD CHECK

Click CHECK button of each HDD to open the window of DVR HEALTH CHECK. User can see full information of each HDD such as model name, serial no, capacity, bad sector ratio, life time (used time) and temperature.



HDD FORMAT

When the new HDD is installed or there seems to be a problem on the HDD, user needs to format the HDD.

If system resources are occupied such as network connection during format process, format may be failed. In this case, it is recommended to reboot the system to release system resources and then try to format again.



- Note**
- 1) It may take a few minutes to format HDD.
If it takes a long time, please check the status of HDD.
 - 2) When the format is done, all data in the HDD will be deleted.
 - 3) The system always reserves some space in each built-in HDD to effectively utilize archiving memory.

2.4 Record

User can make simple recording setting for all channels.

It is to help user make easy configuration for recording resolution, recording speed, recording mode, recording quality and recording periods based on the capacity of HDD installed.



Once user ticks in the check-box of RECORD SETTING and designate the "Input Desired (Recording) Days", the settings for recording resolution, fps and quality will be optimally adjusted to get the similar recording period set in the box of INPUT DESIRED DAYS. Furthermore, user can adjust the settings at CUSTOMER SETTINGS by manual input finally to get the "Recordable

Period” at DAYS TO RECORD based on the capacity of HDD installed.

Note Setting in this menu is not applied to “Quick Setup” but applied to “Camera” menu in Record setup menu.
(Please refer to “Section 4.4.1 Camera” and “Section 4.4.3 Quick Setup” for the detail.)

Caution **Recordable period in this menu is just for reference and may vary depending on the actual site situation.**

2.5 Network

DVR can be connected to network or internet through either fixed IP or dynamic IP by proper setting of DVR and router.



NETWORK TYPE

Select either STATIC IP or DHCP for dynamic IP.

If DHCP is selected, click “IP DETECT” button to receive the updated IP address information, then you can see the completion rate on “Progress Bar”.

SUBNET MASK

Subnet Mask address classifies the subnet that the system belongs to. For more information, please consult your network administrator or your internet provider.

GATEWAY

This is the IP address of the network router or gateway server. It is required when the user wants to connect through external router. For more information, please consult your network administrator or your internet provider

DNS SERVER

Enter the IP address of the Domain Name Server. You should input the DNS Server information in order to use DDNS, E-mail notify and NTP Server. If it is hard to know the correct information, user can input “8.8.8.8”. For more information, please consult your network administrator or your internet provider.

TCP/IP PORT

Input the port number to use when connecting locally or remotely. It is for use with Remote Software P/C (CMS) and Mobile Device(MMS).

WEB PORT

Input the port number to use when connecting from the Web Browser.

BANDWIDTH LIMIT

Depending on the setting made by user, the system can control the data volume transmitted over network ranging from 25 kbps up to 1Gbps. This function is effective especially under narrow bandwidth network condition or when user wants to limit "network bandwidth occupied by video transmission" to a certain level.

UPnP (Universal Plug and Play)

UPnP supports "auto port forward function (NAT TRAVERSAL)" even if the user does not set port forward in the router. It may not be supported in some routers and some network conditions.

Input necessary information based on your network environment.

- NETWORK TYPE : Select STATIC IP (in case of fixed IP)
- IP ADDRESS : Assign a local IP # to DVR (ex, 192.168.0.164)
- SUBNET MASK : Input subnet mask of your LAN (ex, 255.255.255.0)
- GATEWAY : Input gateway of your LAN (ex, 192.168.0.1)
- DNS SERVER : Input IP # of your DNS server
You must input this IP # for internet connection. Please contact your ISP to get this IP #.
You can input "8.8.8.8" in case you do not know this IP #.
- TCP/IP PORT : Default is 9010
If your ISP blocks the port # 9010, you need to input another valid port number. (ex, 9020)
- WEB PORT : Default is 80
If your ISP blocks the port # 80, you need to input another valid web port number. (ex, 8080)
- BANDWIDTH LIMIT : Default is 100 Mbps
Select bandwidth limit you want to set in consideration of network condition.

Note	The maximum number of simultaneous connection is 15 users.
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Note	For the other network settings, such as DDNS, Notification, Mobile Push & P2P Cloud, please refer to the "Section 4.5 Network".
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2.6 Finish

When the setting is finished, click “FINISH” button to close Startup Wizard.

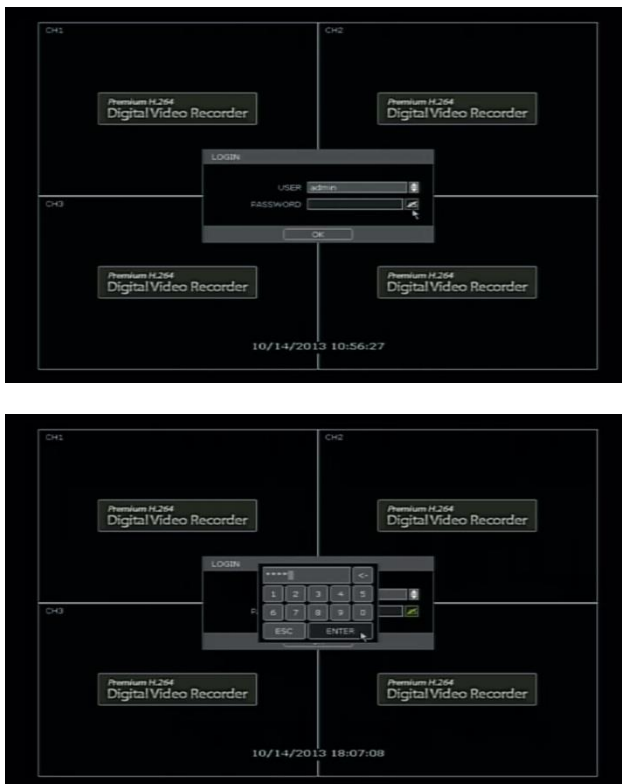


3. Operation

3.1 User Log-in

Check the power connection.

Input USER and PASSWORD for login after turning on the system. The factory default of user and password are “ADMIN” and “1234” respectively. Admin user is to fully control the entire DVR system.



- Note**
- 1) LOGIN window will be permanently displayed in monitor as above picture until user logs in with the right ID and password.
 - 2) If DVR is set as AUTO LOGIN, login process is not necessary.
Please refer to the “Section 4.1.2 User” for details.

3.2 Live Display Mode

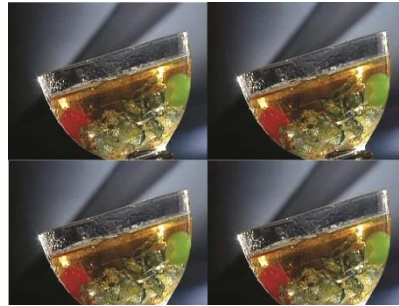
3.2.1. Channel Selection

Real-time live image can be seen by easy button operation after power-on.

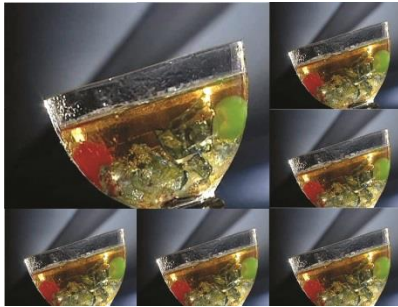
The images can be seen on real-time by 1, 4, 8, 9, 13 and 16 screen. Whenever the up/down arrow button on the front panel or IR remote controller is pressed, the screen will be sequentially changed.



[1 Ch]



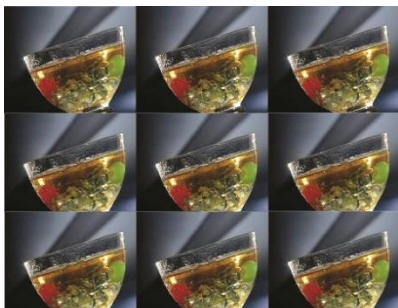
[4 Ch]



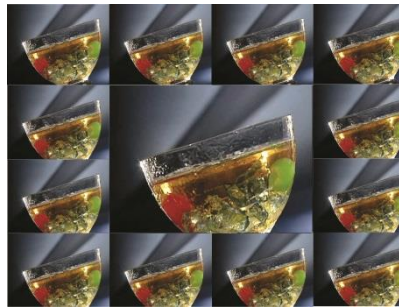
[6 Ch]



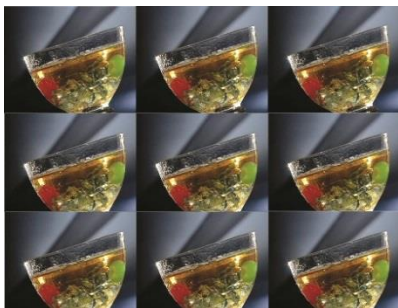
[8 Ch]



[9 Ch]



[13 Ch]



[16 Ch]

To select channel by mouse, double click of the left mouse button. To return to previous screen mode after selecting certain full channel, double click of the left mouse button.

Note To properly select channel by mouse, user should double click the left mouse button deliberately.
Some screen mode may not be available.

“VIDEO LOSS” is shown on the display screen when no camera is connected or camera is disconnected on a certain channel. When camera is disconnected, warning sound shall be generated depending on the system setting.

And, admin user can set different level of authorization for each user. If a certain user is not authorized to view a certain live and playback channel, then no image is shown on the display screen as below.




3.2.2. Icons


In real time live mode, icons or messages will be indicated on the screen to notify the system mode or status. Below are the icon categories, which are indicated on the monitor.

Icon to be shown at right-upper corner on each channel screen		Icon to be shown at right-bottom corner on full screen.	
	Continuous Recording		No HDD, Smart Alarm & HDD Failure
	Motion Detection Recording		Using Emergency Recording
	Sensor Activating Recording		Using PTZ
	Continuous + Motion Alarm Recording		Warning for exceeding temperature
	Continuous + Sensor Activating Recording		Showing sequence mode
	Motion Detection + Sensor Activating Recording		Showing digital zoom mode
	Emergency Recording		
	Sensor Activated		
	Motion Detected		
	Audio Channel		
	PTZ Camera		
	POS		


User can move the USB mouse pointer to the bottom of the monitor in live mode. Then menu bar will be instantly appeared as below picture.





Once the menu icon  is clicked, menu screen will pop up. User can make the overall setting for DVR. (Please refer to the “Section 4 Setting” for details.)


Startup Wizard icon  shows Startup Wizard screen. (Please refer to the “Section 2 Startup Wizard” for details.)


When the Screen Display Mode icon  is clicked, the screen display mode is changed in turn.


In order to control PTZ for the channel that is PTZ camera is applied, click PTZ icon  after selecting full screen mode for that channel. In PTZ mode, user can move pan/tilt and zooming-in/out by moving the mouse pointer, called virtual joystick. (Please refer to the “Section 3.3 PTZ Operation” for details.)


Recording icon  means “instant (emergency) recording”, which is useful to urgently start recording. In emergency recording, the system records all channels with full frame rate at the maximum resolution regardless of recording mode setting. To stop emergency recording, click the same icon again.

Backup icon  allows user to backup the recorded image to external device. (Please refer to the “Section 4.6 Backup” for details.)

User can click the Playback icon  to automatically playback the latest video clip. (Please refer to the “Section 3.4 Playback Recorded Image” for details.)

When the Search icon  is clicked, search screen with various search modes are shown. User can search the recorded image, accordingly. (Please refer to the “Section 3.6 Search Recorded Image” for details.)

Exit icon  shows Exit screen with three different options, such as Log Off, Reboot and Shutdown.


Pin icon button  indicates that user can fix this menu bar, or disable fixing the menu bar by moving away the mouse cursor.
 If user fixes the menu bar, then this menu will not disappear even though user moves the mouse cursor away from that position.
 If user does not fix the menu bar, then the menu will be shown when user move the mouse cursor to the bottom area only.


Note If you cannot find any colored-mark in the right up corner of the live screen mode, then it means that the system does not record any image. In this case, you need to check recording schedule or camera of the main setup menu.

3.2.3. Pop-up Menu

User can click the right button of the mouse to pop up sub-menu as below.



When “SEQUENCE” is selected,  icon is shown on the right-bottom corner of the screen and display screen will be sequentially changed.

When “ZOOM” is selected on full screen mode, digital zoom function is activated and  icon is shown on the right-bottom corner of the screen. In zoom pop-up menu, user can select ZOOM-IN or ZOOM-OUT and exit to normal live display mode by selecting ZOOM EXIT.



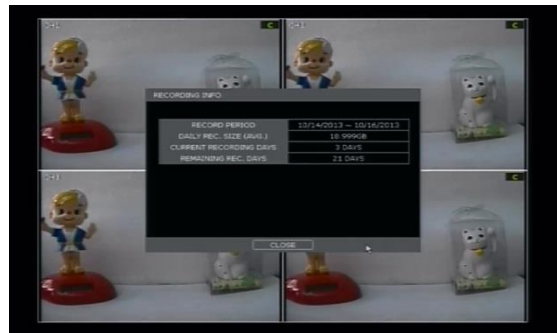
When the “FREEZE” is selected, live image pauses. But, system clock (date/ time information) continues running. Open pop-up menu by right-clicking the mouse button and select the FREEZE mode again to resume the live view.




Select “ADD BOOKMARK” to save the current showing image, including description.



When the “RECORDING INFO” is selected, pop-up screen shows recording status of the DVR based on average data estimation



3.3 PTZ Operation

User can get into PTZ mode by right-clicking the mouse button and selecting “PTZ” in the pop-up menu as below, or select PTZ icon  in the menu bar appeared in the bottom of the main screen.



In PTZ mode, user can control PTZ operation with USB mouse. While pressing the left button of mouse, user can drag the mouse cursor to up/down or left/rightward to move pan/tilt position of the camera. If user moves the mouse cursor to further extend from the center position of the main screen, the PTZ camera moves at faster speed. User can also move zoom-in/out by rolling the wheel of mouse to up or downward.



Note Full PTZ functions are available by using USB mouse, IR remote control, or keyboard controller.

For focus control in PTZ screen mode, user can click the right button of mouse again to get the pop-up menu as below picture. Default mode is to tick "ZOOM". Thus, user can tick "FOCUS" to switch the wheel function of mouse from zoom-in/out to focus. Then, user can control focus by moving the wheel of mouse.

In the same way, user can select preset button or exit PTZ screen mode.



Note User will see numeric pad to select "Preset" number, once after user set a PTZ protocol in setting menu.
Maximum Preset number is 255 but it can be restricted by the number that PTZ camera supports.

User can automatically switch PTZ camera position according to the sequence of preset setting by using GUARD TOUR function, though the connected PTZ camera does not support it. "GUARD TOUR" on the pop-up menu can be enabled after changing to full screen for the channel that the PTZ camera is connected to. Please make sure that PTZ camera setting is correct, otherwise, "GUARD TOUR" is shown as disabled.





Caution Depends on PTZ camera, some preset positions might be skipped in the case that the PTZ camera cannot mechanically move or control focus within the interval time set by DVR. In this case, it is recommended to make setting of interval time a little longer.

3.4 Playback Recorded Images

To playback recorded image, press Play button from the Front Panel or IR Remote Controller. Press the Play button and the latest recording image will be playback.

It is easy to use USB mouse or the Front Panel's Jog/Shuttle to playback recording files. Turn the Jog and the recorded files can be seen backwards or forwards. Turn the Shuttle and the playback speed can be controlled 2, 4, 8, 16, 32 times while playback backwards or forwards.

User can click the playback icon  in the menu bar in the live mode to automatically playback the latest video clip. In playback screen, user can make various playback modes, such as instant manual backup/archive), go to search mode, change channel, and change screen modes. User can make a click of the left mouse button in colored-time bar to move white-vertical line that represents playback time.

In order to exit from the playback mode, click Exit icon  in the menu bar.



Note Jog/Shuttle in the front panel will not be available depending on the DVR model.

3.5 Quick Backup during Playback

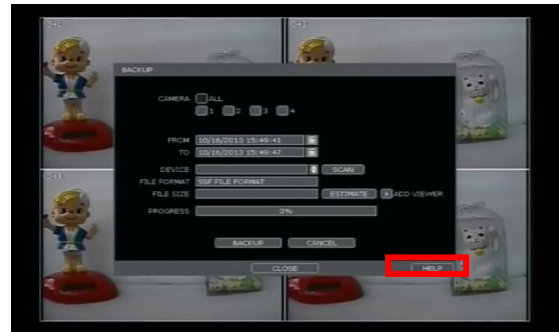
User can easily archive video while he/she watches video playback.

In playback mode, user can press "ENTER" button in the front panel to set archive "start" time. After pressing this "ENTER" button, user will see "Quick backup starts" in right bottom of the playback monitor. Once "Quick backup starts" message is shown, user can keep playing back video until user wants to finish archiving, and then press the same "ENTER" button again to set backup "end" time. Then, backup menu window will be popped up and user can select the backup media like CD/DVD or USB thumb drive, and execute archiving.



Press "ENTER" button to set "start" and "end" time during video playback.

Button type may be different depending on the DVR case.



Note “HELP” button can help you understand how to setup several important settings. For example, if you need help about how to set Backup, click “HELP” button at the right bottom of the menu.

3.6 Search Recorded Image

3.6.1. Calendar Search

The user can select date and time to search for a certain file within the recorded image.



User can move the white-vertical line to the time that user wants to search. The colors of the time bar are different by each recording mode. Please refer to “section 4.4.2” for

details on colors. Time bars in color shows by 4channel group.

“*” mark in date as above picture means that there is a video data recorded.

3.6.2. Search Date/Time

Enter the desired date and time to playback the recorded image.

Use the arrow button to move to each day/month/year and time category for selecting second/minute/hour/month/year.



3.6.3. First Data

Go to the first screen of the recorded image. This is the oldest image recorded.

3.6.4. Last Data

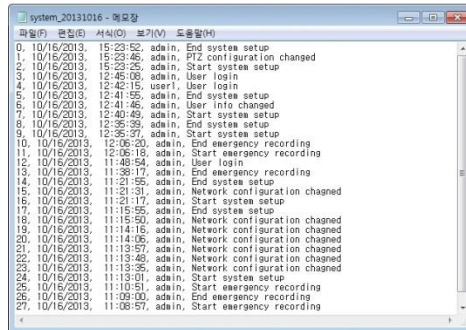
Go to the last screen of the recorded image. This is the latest image recorded.

3.6.5. System Log

The system log search is used to find particular system log information, quickly and easily. User can copy this event list to USB memory device in text file format.



Once export is completed, user can find a date folder created in USB thumb drive. There is “system.log” file stored in the date folder.



Following is the category indicated on the system log viewer.

1. Log by system
2. Log by setup
3. Log by network

3.6.6. Event Log

The Event log search is used to find particular event, quickly and easily. User can copy this event list to USB memory device in text file format.

Once USB memory stick is put via USB port, user must press “SCAN” button to detect it, and then press “EXPORT” to copy the log information to the media.



To see particular event of activated time, move the arrow button of the Front Panel or Remote Controller to the desired time range.

Following is the category indicated on the Event Viewer.

1. Alarm by Sensor
2. Alarm by Motion

3. Alarm by Video Loss
4. Alarm by HDD Full

Note In case the Alarm does not activate even though the alarm input setting had been done, check the alarm connection port of the product's rear panel.

Note 20 numbers of log record will be shown on one page of the [System Log] and [Event Log] window. User can click the arrow icon to search the log records on another page.



To see the corresponding list of [System Log] and [Event Log], user needs to click SEARCH button after selecting desired date and event type.

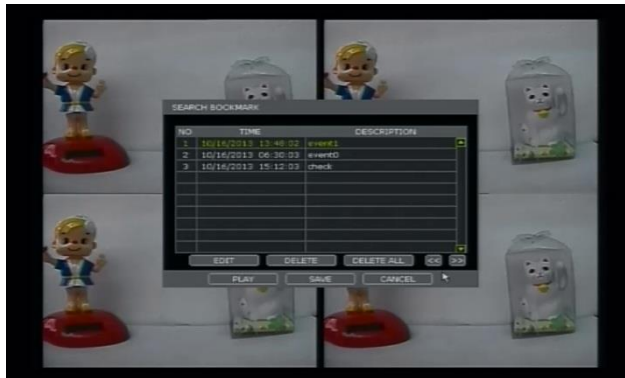
3.6.7. POS

Input the search information (channel #, date, time & keyword) and then click [SEARCH] button to get the list. If no keyword is input, system will display all data during designated time period. Click [PLAY] button to display the searched video image and POS data as well.



3.6.8. Bookmark

Bookmark data can be checked, modified and deleted. Select one of them in the list and click [PLAY] button to display the correspondent video image.

**Note**

User can click Search icon in the menu bar or press “SEARCH” button in the front panel to get the SEARCH pop-up menu as below. In this menu, full search function by using front key buttons is available.



3.7 DST Setting and Image Playback

During DST (Daylight Saving Time) period, DVR time clock has to be adjusted according to regional time zone. That is, DVR time clock will be shifted by one hour after DST setting while DVR will restore the time clock to normal after DST finishes.

To make DST setting on the DVR, go to the menu of SYSTEM > INFORMATION and click “DATE/TIME” to open date & time setting window as below. User can select “USE DST” to apply DST time change.



There is an hour overlapped data when DST finishes. Such period of hour will be indicated in Blue color in Intelli-Search Bar on playback mode.



When user click on such overlapped period, a message of “Data Selection” will pop up, then user can select whether to play DST data or Non-DST data.

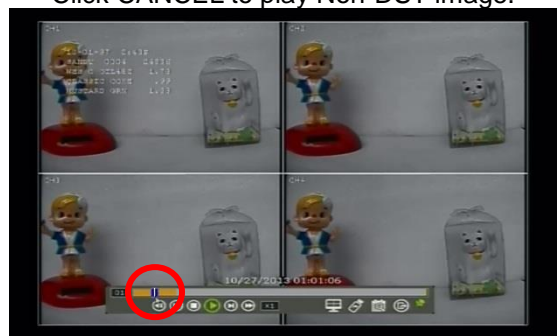


Click OK to play DST image.



["DST" image is displayed on screen]

Click CANCEL to play Non-DST image.




["Non-DST" image is displayed on screen]

4. Setting

General setting structure consists of “System”, “Device”, “Event”, “Record”, “Network” and “Backup” as below.



Main Classification	Sub Classification
SYSTEM	INFORMATION
	USER
	DISPLAY
	HDD
	CONFIGURATION
DEVICE	CAMERA
	AUDIO
	PTZ
	POS
	KEYBOARD
EVENT	SENSOR
	MOTION ALARM
	EVENT ALARM
RECORD	CAMERA
	SCHEDULE
	QUICK SETUP
NETWORK	NETWORK
	DDNS
	NOTIFICATION
	MOBILE PUSH
	P2P CLOUD
BACKUP	BACKUP

User can find the menu icon  in the menu bar or menu button in the pop-up menu by right clicking the mouse button.

User can move mouse cursor from “System” through “Backup” to instantly look around the sub-menus in the menu screen.

4.1 System

4.1.1. Information



SITE NAME

User can designate the site name by using virtual keyboard as below.



SITE ID

User must setup SITE ID to match with the ID setting of keyboard controller, if user wants to use it to control DVR.

User also needs to select the correct model of keyboard controller and BUAD RATE setting in "Keyboard" menu.

DATE/TIME

User can make various settings such as time zone selection, DST (Daylight Saving Time) and time sync mode.



Note “HELP” button can help you understand how to setup several important settings. For example, if you need help about how to set Date/TIME, click “HELP” button at the right bottom of the menu.

TIME SYNC MODE

There are three types of time sync mode.

- **Server Mode**
The operating DVR is set as a Time Sync Server, which can synchronize the time clock of another DVR(s) connected over the same network environment.
- **Client Mode**
The operating DVR is set as one of the client DVR(s). Input the IP address of designated DVR or Remote Software P/C (CMS) as a Time Sync Server in “SYNC SERVER”, then DVR time clock is synchronized with Time Sync Server by interval time set in “TIME SYNC CYCLE”.
- **NTP Mode**
NTP server is one of standard time servers available on Internet and it is recommended to use “pool.ntp.org”. If you want to activate this mode, you have to correctly set the TIME ZONE of your local area and then click SYNC NOW.

LANGUAGE

User can select the language according to the country or user’s preference.

DVR supports various languages. If you cannot find your preferred language, please contact your dealer in your area accordingly.

REMOTE ID

User must setup REMOTE ID to match with the ID setting of IR remote controller, if user wants to use it to control DVR.

UPGRADE FIRMWARE

User can easily upgrade the system firmware via DVD/CD/USB Memory Stick/FTP server.



Caution **Do not click CANCEL button during firmware upgrade. It may cause serious damage on the system !!!**

The setting value might be changed to that of factory default in case that there are a lot of changes between new firmware and existing firmware in functions, etc. Therefore, it is recommended to check the setting value and operating condition of the DVR after firmware upgrade.

Procedure How to upgrade system firmware by using USB memory stick

- 1) Put USB thumb-drive which was formatted by FAT/FAT32 in any USB port of DVR that shall be compatible with USB 2.0 version
 - 2) Once the system detects the thumb-drive, user can see a brand or model name in "DEVICE" after pressing "SCAN" button.
 - 3) Select DVR name and version to be applied, and then click "OK" to confirm.
- (*) It is not allowed to use the partitioned USB memory.**

[Automatic firmware upgrade through "PUSH ALERT"]

- 1) Select METHOD as "FTP".
- 2) Default FTP information operated by manufacturer (Host address, username and password) is shown as below. User must have prior consultation with the manufacturer if he wants to operate his own FTP server
- 3) Enter your convenient time at CHECK TIME and then click [SAVE] button.



- 4) The system will regularly check whether the latest version of firmware is available at FTP server and generates alert message if the latest version is found.
- 5) Click [OK] button to proceed automatic firmware upgrade. After completed, the system will reboot

VIDEO SIGNAL

Check the right video signal (NTSC or PAL) according to the country. This setting should be matched with the [NTSC/PAL Selection Switch] located on the rear panel. Video images might be heavily shaking and blinking in probably black & white if NTSC/PAL is not properly set.

IP ADDRESS

It shows the IP address which is set in the “Network” menu.

MAC ADDRESS

It is the unique identity number for each system.

KEY PAD BEEP

User can turn on or off the beeping sound of key pad.

4.1.2. User

The ADMIN user (default password is 1234) has got the full authority for system setting, and can change the system password or assign different permission level to each user.

FUNCTION : shutdown, search, PTZ control, backup and playback.
MENU ACCESS : system, device, record, network, backup, and quick setup.
LIVE & PLAYBACK : live & playback channel



Note Total number of users including administrator is 16.

Click OPTION button to make setting of “Auto Login and Auto Logoff” function.



AUTO LOGIN and AUTO LOGOFF

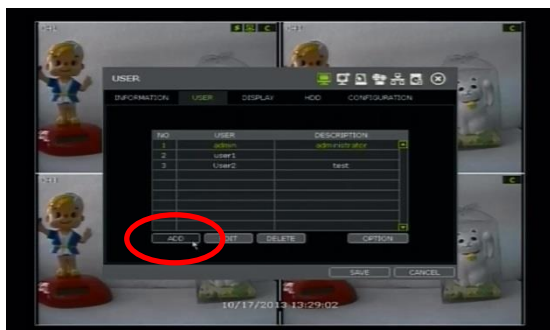
If user selects "On Boot", DVR is not requested to input ID and Password during system rebooting. On the contrary, if user selects "Auto Logoff" and sets the time, DVR will go to live display mode just after the setting time. User has to login again by input of ID and Password to control the DVR.

LEVEL OF USER AUTHORIZATION


The administrator can control full function of the system (DVR and Remote S/W), and add the New User with a different authorized level and also delete/edit User details.

- **Setting Authorized Level at DVR**

Go to the menu of [SYSTEM > USER] and click [ADD]. You can add or edit user details.



Example : How to set a User with "Live Monitoring only"

- 1) Add a new user name, description and password.
- 2) Disable all options in [FUNCTION] and [MENU ACCESS].
- 3) In [LIVE & PLAYBACK], select channel(s) for live monitoring, and click [OK].
- 4) A new user has been added, and click [SAVE].
- 5) To verify this limited function, log-off through Exit icon  and login as the user set above. User can receive the live images. However, when user clicks payback button or select any other function, warning message of "No Permission for this function." will pop up.

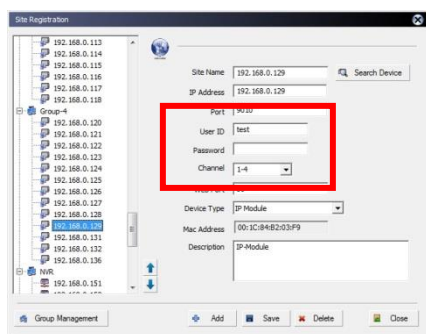


- **Setting Authorized Level at Remote Software (CMS)**

Level of authority for the user is linked up between DVR and Remote Software. If a user has been restricted for certain permissions in DVR operation such as “Live and Playback of each channel, Search, PTZ Control and Backup”, then those restrictions will also be applied for same user when operating Remote Software.

Example : How to set a User with “limited access of camera channels”

- 1) Open Site Registration, and add new site.
- 2) Input User ID and Password (which has already been registered in DVR, with limited access of certain camera channels).
- 3) Connect the site at Monitoring Window, then the limited accessible camera channels will not be shown.



Note User ID in Site Registration of Remote Software

- 1) The authority of a certain User ID at Site Registration is governed by the permission level set in DVR.
 - 2) Such User ID should be pre-registered in DVR with designated permission level. If user has been registered in Remote Software only (not in DVR), then such user cannot be connected to the DVR via Remote Software.
-

4.1.3. Display

User can set sequence dwell time, VGA resolution, OSD display, spot-out dwell time and spot-out channel & dwell time as below picture.



SEQUENCE

User can set dwell time for sequential channel display.

VGA RESOLUTION

The system supports three kinds of video resolutions for HDMI and VGA : 800x600, 1024x768, 1280x1024 and 1920x1080. User needs to set the proper resolution in accordance with the monitor resolution.

OSD

User can select OSD caption to be displayed.

SPOT OUT

User can select channel to be displayed on spot monitor and set dwell time.



4.1.4. HDD

User can select "Overwrite" or "Stop recording" when HDD becomes full and also can easily format new HDD or existing HDD by ticking in the check box.



HDD CHECK

Click CHECK button of each HDD to open the window of DVR HEALTH CHECK. User can see full information of each HDD such as model name, serial no, capacity, bad sector ratio, life time (used time) and temperature.



HDD FORMAT

When the new HDD is installed or there seems to be a problem on the HDD, user needs to format the HDD.

If system resources are occupied such as network connection during format process, format may be failed. In this case, it is recommended to reboot the system to release system resources and then try to format again.



- Note**
- 1) It may take a few minutes to format HDD.
If it takes a long time, please check the status of HDD.
 - 2) When the format is done, all data in the HDD will be deleted.
 - 3) The system always reserves some space in each built-in HDD to effectively utilize archiving memory.

Caution WARNING MESSAGE

To achieve high-level system stability, warning message of high temperature will be popped up when temperature inside the system exceeds optimum range. This problem may be driven from mal-function of ventilation fans. In this case, user shall inspect if the cooling fan is properly working, or ambient temperature around the system is properly kept.

4.1.5. Configuration



FACTORY DEFAULT

With authorized password, user can make the system back to factory default configuration. Once the factory default is done, all the configurations made by user will be deleted and the system setting will be originated by factory default. However, recorded video data are protected.

EXPORT/IMPORT

User can copy and paste the system configurations in this menu. “Export” means when user want to copy the settings of this system to USB memory devices. “Import” means when user want to call up the settings of other system from CD/DVD/USB memory devices. During import process, make sure that the F/W version of the sourced DVR has to be same as the one of target DVR which user wants to import settings to.

4.2 Device

4.2.1. Camera

User can set each camera's title, motion area and color adjust.



TITLE

In order to distinguish the channel from the others, user can designate the channel name. The name is applied to both DVR and remote monitoring software.

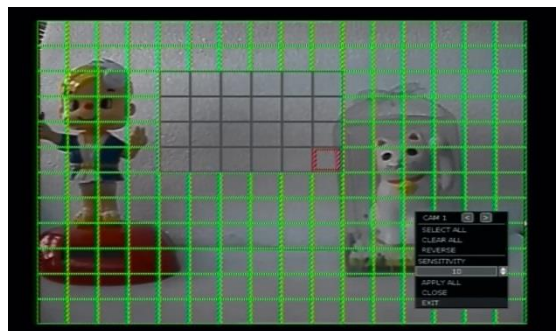
COVERT

If a channel is set as COVERT, no other users except administrator can see the image in live & playback mode. It is applied to both DVR and remote monitoring software.

MOTION AREA

User can select motion detection area and sensitivity.

The area can be selected by clicking block or drag of the mouse. Motion detection area is shown with green border line and unselected area is shown with grey border line.



Note Motion detection area and sensitivity should be set, properly, in consideration of the actual motion happened in the site.

ADJUST

User can set channel image like brightness, contrast, color and so on.



4.2.2. Audio

User can select audio input and output during live display, and match the audio input to a designated channel. Number of audio channel may differ depending on DVR model. User can hear audio sound under both live display and playback mode depending on the system setting. Select "USE 2-WAY AUDIO" to make voice communication between DVR and remote side.



4.2.3. PTZ

Full control of PTZ camera is available in this menu. For details, please refer to "Section 3.3 PTZ Operation".



Check the below items for proper P/T/Z operation.

- Check if the protocol of the connected PTZ camera is correct.
- Check if the communication setting including baud rate of the connected PTZ camera is in accordance with the assigned value for that P/T/Z protocol.
- Check if the address of the connected PTZ camera is correct.
- Check if wiring to P/T/Z controllers is correct.

Procedure How to setup PTZ camera with Pelco-D protocol (example)

- 1) Make sure of serial communication with the PTZ camera through RS-485 port.
 - 2) Select "Pelco-D" in the protocol list, and set address.
 - 3) Click "Save" button to confirm this configuration.
-

PROTOCOL

Select the proper protocol of the connected PTZ camera.

BAUD RATE

User can select the baud rate level from 2,400bps up to 57,600bps.

ADDRESS

Set the P/T/Z driver address of the connected camera.

CONTROL

When the SET button is clicked, OSD menu of the PTZ camera will be shown on the monitor. User can set the PTZ such as speed, preset, tour, autopan and so on.



M (Depending on the model of PTZ camera)

If selected, the OSD menu of PTZ camera is imported and shown on the DVR monitor and hence user can make full PTZ setting.

PRESET

The system supports the number of preset from 1 to 255.

But it can be restricted by the number that PTZ camera supports.

4.2.4. POS

POS equipment can be connected to DVR through RS-232 port or LAN.



- **SETUP** : Click to go to the setup screen.
- **PLAYBACK DISPLAY SETTINGS** : Click to open setup screen for playback mode.
- **PORT SETUP** : Click to open setup screen for communication port.



POS SETTINGS

- **NO** : ID# of POS device.
- **CAMERA** : Select the camera to link with POS device.
- **TYPE** : Select COM (RS-232) or TCP/IP (LAN)
- **POS IP** : Input IP of POS device when it is connected through network.
- **PROTOCOL** : Communication protocol between DVR and POS device.
 - > [TEXT-IN] : Text input type protocol.(ASCII character)
 - > [SDVR-POS] : Manufacturer's own protocol.
Please contact your POS dealer for details.
- **START CHARACTER** : Input the assigned character to start display and save.
If there is no input, the system will display and save all data without classification per transaction.
- **END CHARACTER** : Input the assigned character to terminate display and save.
It must have [START CHARACTER] to work correctly.
- **LINE BREAK** : Set the line change character.
It should be 16 digits HEX Value.
 - > [CRLF] / [CR] / [LF] : The character that is generally used in ASCII-type POS.

> [Custom]

Please contact POS manufacturer for the detail.

: It can be used except the above general character.
Only number(0 ~ 9) and alphabet(A ~ F) can be used and even numbers should be input.

ex) Hexadecimal : 0x0D 0x0A → 0D0A

- SAVE

: Select to save POS data.

LIVE DISPLAY SETTINGS

- DISPLAY LINE : Set the number of line to be displayed on the screen.
- CLEAR TIME : Set the time period to be displayed on the screen. The data will be deleted if no more data is input after the setting time here. If it is set as "0", the data will not be deleted.
(If there is Start Character and the character is input, current data will be deleted regardless of the Clear Time setting.)
- POSITION : Designate the display position of POS data.
- FONT COLOR : Select the font color which will be displayed on the screen. It will be displayed with the color that is shown on "SAMPLE TEXT".
- SHOW : Select to display POS data in the live mode.
- SCROLL REVERSE : Select to change the direction of scrolling. If it is selected, you can scroll from the bottom to top, that is, the latest data is displayed on the top.

PLAYBACK DISPLAY SETTINGS



- DISPLAY LINE : Set the number of line to be displayed on the screen.
- CLEAR TIME : Set the time period to be displayed on the screen. The data will be deleted if no more data is input after the setting time here. If it is set as "0", the data will not be deleted.
(If there is Start Character and the character is input, current data will be deleted regardless of the Clear Time setting.)
- POSITION : Designate the display position of POS data.
- FONT COLOR : Select the font color which will be displayed on the screen. It will be displayed with the color that is shown on "SAMPLE TEXT".
- SHOW : Select to display POS data in the playback mode.
- SCROLL REVERSE : Select to change the direction of scrolling. If it is selected, you can scroll from the bottom to top, that is, the latest data is displayed on the top.

PORT SETUP



- TYPE : Setup the type of communication port.
 - > SERIAL : It is for 1-to-1 connection between DVR and POS device without Serial MUX.
 - > MUX : It is for 1-to-Multi connection between DVR and POS devices.
- BAUDRATE : Set BAUDRATE according to the connected POS device.
- PARITY : Set PARITY according to the connected POS device.
- DATABIT : Set DATABIT according to the connected POS device.
- STOPBIT : Set STOPBIT according to the connected POS device.

4.2.5. Keyboard

When the external keyboard controller is in use, select the right model and corresponding baud rate.



4.3 Event

4.3.1. Sensor

User can install multiple sensors on the system to get the pre & post alarm recording and intensive recording function as well.



ON/OFF

Turn on or turn off the sensor

CAM

Select the associated camera

OUT

Select the associated alarm output

Caution Relay contact can stand up to 24V/1A. In case that it is connected to the external circuit which is over 24V/1A, it can cause a problem on the system.

INTENSIVE RECODING

When alarm is triggered, system instantly assigns full frame rate recording to alarm-triggered channel during the selected dwell time, and also will trigger alarm signal via the selected sensor-out channel. The recording speed of all other channel will remain unchanged.

PRESET

User can select the camera to move to preset position when the sensor is triggered. (User should setup preset position in 4.2.3 PTZ menu in advance.)

DWELL (Post Alarm)

Set the recording period from the start of sensor input activation. During this period, the corresponding camera will record according to the Record setting. The recording stops and alarm output is turned off when the setting period is elapsed.

PRE-ALARM

Set recording period in seconds just before perceiving sensor input up to 5 seconds of time length. The system records in certain seconds of time prior to the time that alarm is activated, so that user

can search video even before alarm is triggered. The pre-alarm recording mode is always “continuous” at the recording speed that user sets in “Camera” of “Record” menu.

TYPE

Select the sensor type between N/O(Normal Open) and N/C(Normal Close), connecting to alarm input terminals. Circuit of N/O type is usually open, and the activation of the sensor occurs at the time of close, and N/C type works the reverse way.

NOTIFY

User can select how to be alerted upon sensor is activated or motion is triggered by pressing “NOTIFY” button.

The system will generate buzzer sound in the selection of buzzer and/or make pop-up screen of the camera in the selection of camera pop-up.



Note Check the setting of the sensor type (N/O or N/C). It is recommended to use “Dry Contact Type” while “Wet Contact Type” may cause the damage to the system. The alarm might not function if the used sensor type and the system setting are inconsistent.

Note “Camera pop-up” means that multi-screen live video mode will be switched to single channel mode automatically upon alarm triggered. This single channel video is the channel triggered by alarm.

4.3.2. Motion Alarm

Motion alarm is to start the recording when motion is detected by installed camera based on the area setting. The system will trigger alarm signal via the selected sensor-out channel.



4.3.3. Extra Alarm

There are several alarm functions available on the system such as SMART, VIDEO LOSS, RECORDING FAILURE and HDD FULL.



S.M.A.R.T.

It is to trigger alarm signal when HDD might be about to be out of operation. Please refer to the "Section 4.1.4 HDD" to check the HDD status.

VIDEO LOSS

It is to trigger alarm signal when the camera signal is disconnected.

RECORDING FAILURE

It is to trigger alarm signal when the system doesn't record image due to the error in HDD or system and so on.

DISK FULL

It is to trigger alarm signal when the HDD is occupied with a certain percentage of its capacity

If user set HDD FULL as STOP RECORDING in HDD menu and the HDD is occupied with the certain percentage set here, DVR stops recording and alarm trigger.

Note Extra alarm will be remained in the event log only when it is set as “ON”.

Note S.M.A.R.T(Self-Monitoring Analysis and Reporting Technology) is the technology that is developed by HDD manufacturers.
In some cases, S.M.A.R.T may not detect the abnormal operation of the HDD.
It is recommended to do HDD health check in the HDD menu regularly.

4.4 Record

4.4.1. Camera

User can make recording setting for each channel separately.



ON/OFF

It is to switch “recording” on and off in each channel. If recording is not required on the selected channels, even when the camera signal is input, set the recording of the corresponding channel as [OFF]. Then, recording of the channel stops without pulling camera BNC cable off. [ON] or [OFF] can be selected. The default is [ON].

RESOLUTION

It refers to the required horizontal and vertical pixel number of a frame. The resolution is indicated as (horizontal) X (vertical) pixel number. Thus, select one setting from 352×240/288, 720×240/288, 720×480/576 & 960×480/576. As the resolution number increases, the picture quality becomes higher. For example, 352×240 is VHS level and when high quality camera is used, 960×480/576 shows DVD level picture quality. When the picture quality gets higher, the recording file size becomes bigger and the recording period will be shorter. Thus, selecting appropriate resolution according to the situation is important.

Note The storage capacity for the same image will be different. Image per byte is ratio to the image dimensions (horizontal x vertical), thus 720×240/288(2CIF) is twice the size of 352×240/288(1CIF) and 720×480/576(D1) takes about 4 times the storage capacity. Therefore when high resolution is selected for the same period, the storage capacity taken up will be larger and the storage period will be shorter on the same Hard disk capacity.

FPS

It means “Frame” consisting even and odd fields per second. The system automatically calculates “Remaining FPS”.

QUALITY

The setting value of “Quality” directly influences the byte size per image. For example, the byte size decreases as quality goes lower. In this case, blocking (mosaic) phenomena tends to appear, which is resulted by high compression. In contrast, blocking phenomena disappears as quality

goes higher. In this case, the required storage space per image increases, which leads to shortening of total recording period. Therefore, give consideration to the necessary recording period, importance of each camera image, and quality of analog signal when setting the recording quality.

Note There are two major different modes for quality setting.

1) VBR (Variable Bit Rate)

In this mode, user can change each camera's quality by selecting one of the following options.

: Low / Standard / High / Highest

2) CBR (Constant Bit Rate)

In this mode, user can change all camera's quality by selecting one of the following options.

: 128K~896KBPS / 1M~3MBPS / Low / Standard / High / Highest / Ex. Highest

AUDIO

Select the associated audio channel.

AUTO DEL (Auto Delete)

It means that the system will delete video whatever is recorded longer than the number of days set by "Auto Del" in accordance with privacy regulation in certain country.

Note "Auto Del" does not guarantee the number of recording days that user set. For example, even though user sets 10days in "Auto Del", if HDD space is not enough, then the system cannot record up to 10days. This feature is not to keep video data for a certain number of days set by user.

If user sets 10days in "Auto Del" on August 20 for the system that has, for example, 30days of video data, then the system will keep video from August 11 to August 20 for 10days. All other video recorded before August 11 will be deleted by the system. On August 21, the system will keep video from August 12 to August 21 for 10days.

DUAL STREAM

DVR can simultaneously generate two independent video streams (one for local recording and the other for network transmission) for user to effectively manage recording image quality and network traffic. The frame rate and resolution for each stream can be independently set, For example, user can make recording setup as "30fps at 960H resolution" while the network setup as "just 1 fps at CIF resolution".

Select "USE DUAL STREAM" in order to use this function.



RESOLUTION

Select the resolution to be transmitted. The higher resolution requires the bigger network bandwidth due to its data size.

FPS

Select the frame rate to be transmitted. It is not related to the record setting.

QUALITY

Select the image quality to be transmitted. It is not related to the record setting. The higher quality requires the bigger network bandwidth due to its data size.

AUDIO

Select On or Off to transmit audio or not.

STREAM LIMIT

It allows user to reduce the image quality for transmission by percentage of the standard quality. The lower percentage requires the smaller network bandwidth but the image quality will be lower. On the contrary, the higher percentage requires the bigger network bandwidth but the image quality will be better. The highest image quality(100%) is same to the standard image quality of record setting.

Note According to the setup of Resolution and FPS, system automatically calculates "Remaining FPS" for dual stream.

Note Dual stream function is applied to network transmission of the live image monitoring, only. In case of VOD(Playback) at the remote software, it is not related to dual stream and the network transmission follows record setting of the DVR.

Note "HELP" button will help you understand how to setup several important settings. For example, if you need help about how to set Camera, click "HELP" button.

4.4.2. Schedule

Set recording schedule for each camera. First, select the camera to set schedule, or "All". Recording can be set by each hour from 00 through 23 a day.



NO COLOR (Off)

“Off” means no recording. Even though user set recording frames and on in “CAMERA”, the system will not record anything if user sets “OFF” in SCHEDULE.

YELLOW COLOR (Continuous Recording)

In continuous recording mode, the system records all the time as set by “CAMERA”.

GREEN COLOR (Motion-Detection Recording)

In this mode, the system records only when motion is detected in the motion area, and stops recording when motion is not occurred. In addition, user can make motion recording configuration in “MOTION ALARM” of “DEVICE” menu.

If user sets “OFF” in “MOTION ALARM” of “DEVICE” and sets “MOTION” in “SCHEDULE”, then the system will record when motion is detected but motion alarm is not activated.

ORANGE COLOR (Sensor-Activated Recording)

In sensor mode, the system will record when sensor is triggered only during dwell time as set in “SENSOR” of “DEVICE” menu.

If user sets “OFF” in “SENSOR” of “DEVICE” and sets “SENSOR” in “SCHEDULE”, then the system will not record anything even though a sensor is triggered.

SKY BLUE COLOR (Continuous + Motion Detection Recording)

The system records all the time by “continuous” as set by “CAMERA” of “RECORD” but will switch recording mode to motion configuration as made by “MOTION ALARM” of “DEVICE” if motion is detected in motion area. The system also will notify “motion event” message to Remote Software over the network.

If user sets “OFF” in “MOTION ALARM” of “DEVICE” and sets “CONT + MOT” in “SCHEDULE”, then the system will record as mentioned above, but motion alarm is not activated even motion is detected.

DARK ORANGE COLOR (Continuous + Sensor-Activated Recording)

The system records all the time by “continuous” as set by “CAMERA” of “RECORD” but will switch recording mode to sensor configuration as made by “SENSOR” of “DEVICE” if a sensor is triggered. The system also will notify “sensor event” message to Remote Software over the network.

If user sets “OFF” in “SENSOR” of “DEVICE” and sets “CONT + SENS” in “SCHEDULE”, then the system will record with continuous recording mode only, but sensor alarm is not activated even though a sensor is triggered.

PINK COLOR (Motion Detection + Sensor-Activated Recording)

The system does not record in normal operation but records only when motion is detected as set by "MOTION" of "DEVICE" and a sensor is triggered as set by "SENSOR" of "DEVICE".

If user set "OFF" in both "MOTION" of "DEVICE" and "SENSOR" of "DEVICE", then the system will record only when motion is detected, but neither motion alarm nor sensor alarm is activated.

Note In case the recording schedule is set by "CONT + MOT" or "MOT + SENS", then the system records by continuous or motion detection mode in normal operation. However, when motion is occurred in motion area or alarm is activated, then recording mode will be automatically switched to intensive recording as set by "MOTION ALARM" or "SENSOR" of "EVENT" menu.

Note Dark Blue Color

The data recorded during DST (Daylight Saving Time) will be indicated in Dark Blue color in Intelli-Search Bar on playback mode.

User can add holiday in HOLIDAY SETUP as below picture to up 32 holidays.
Press "DATE" first and write description, and then press "ADD" button to list up holiday.



Note Instant Recording (Emergency Recording)

In case of a specific model that has "Instant recording" button in front panel, the system will instantly start recording all the channels with full frame rate at the maximum resolution regardless of recording mode setting.

E-REC is shown in live mode and red-colored bar is shown in the time search bar of playback mode for the video recorded by instant recording.

4.4.3. Quick Setup

Quick Setup is to help user make easy configuration for recording resolution, recording speed, recording mode, recording quality and recording periods based on the capacity of HDD installed.

The setting made by QUICK SETUP will get the first priority to apply on the system whatever user sets configurations in other menu.

USE QUICK SETUP

Once user ticks in the check-box of USE QUICK SETUP and designate the "Input Desired

(Recording) Days”, the settings for recording resolution, fps and quality will be optimally adjusted to get the similar recording period set in the box of INPUT DESIRED DAYS. Furthermore, user can adjust the settings at CUSTOMER SETTINGS by manual input finally to get the “Recordable Period” at DAYS TO RECORD based on the capacity of HDD installed.



Caution Recordable period calculated by QUICK SETUP is just for reference and may vary depending on the actual site situation.

4.5 Network

DVR can be connected to network or internet through either fixed IP or dynamic IP by proper setting of DVR and router.

4.5.1. Network



NETWORK TYPE

Select either STATIC IP or DHCP for dynamic IP.

If DHCP is selected, click “IP DETECT” button to receive the updated IP address information, then you can see the completion rate on “Progress Bar”.

SUBNET MASK

Subnet Mask address classifies the subnet that the system belongs to. For more information, please consult your network administrator or your internet provider.

GATEWAY

This is the IP address of the network router or gateway server. It is required when the user wants to connect through external router. For more information, please consult your network administrator or your internet provider

DNS SERVER

Enter the IP address of the Domain Name Server. You should input the DNS Server information in order to use DDNS, E-mail notify and NTP Server. If it is hard to know the correct information, user can input "8.8.8.8". For more information, please consult your network administrator or your internet provider.

TCP/IP PORT

Input the port number to use when connecting locally or remotely. It is for use with Remote Software P/C (CMS) and Mobile Device(MMS).

WEB PORT

Input the port number to use when connecting from the Web Browser.

BANDWIDTH LIMIT

Depending on the setting made by user, the system can control the data volume transmitted over network ranging from 25 kbps up to 1Gbps. This function is effective especially under narrow bandwidth network condition or when user wants to limit "network bandwidth occupied by video transmission" to a certain level.

UPnP (Universal Plug and Play)

UPnP supports "auto port forward function (NAT TRAVERSAL)" even if the user does not set port forward in the router. It may not be supported in some routers and some network conditions.

Input necessary information based on your network environment.

- NETWORK TYPE : Select STATIC IP (in case of fixed IP)
- IP ADDRESS : Assign a local IP # to DVR (ex, 192.168.0.164)
- SUBNET MASK : Input subnet mask of your LAN (ex, 255.255.255.0)
- GATEWAY : Input gateway of your LAN (ex, 192.168.0.1)
- DNS SERVER : Input IP # of your DNS server
You must input this IP # for internet connection. Please contact your ISP to get this IP #.
You can input "8.8.8.8" in case you do not know this IP #.
- TCP/IP PORT : Default is 9010
If your ISP blocks the port # 9010, you need to input another valid port number. (ex, 9020)
- WEB PORT : Default is 80
If your ISP blocks the port # 80, you need to input another valid web port number. (ex, 8080)
- BANDWIDTH LIMIT : Default is 100 Mbps
Select bandwidth limit you want to set in consideration of network condition.

Note The maximum number of simultaneous connection is 15 users.

4.5.2. DDNS

User can use either a public DDNS server or the DDNS server operated by DVR maker (dynlink.net) to connect through dynamic IP.

DDNS SERVER

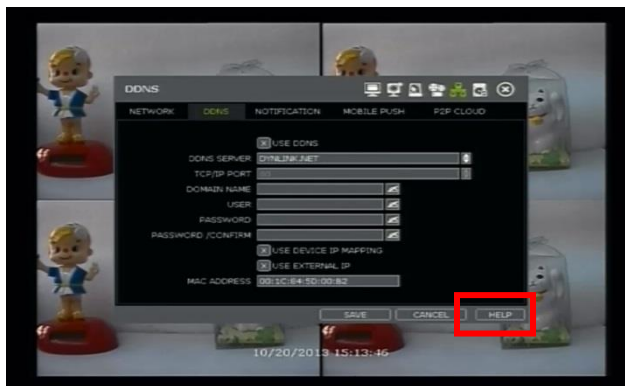
User has to tick on “Use DDNS” check box.

The default is **[DYNLINK.NET]** and user can select **[DYNDNS.COM]** by using drop-down list.

“dynlink.net” is the fixed domain name of DDNS server operated by DVR maker while

“dyndns.com” is one of public DDNS servers.

Note “HELP” button will help you understand how to setup several important settings. For example, if you need help about how to set DDNS, click “HELP” button at the right bottom of the menu.



Input necessary information based on your network environment, and then click [SAVE] button.

- Enable USE DDNS box
- DDNS SERVER : Select DYNLINK.NET
- TCP/IP PORT : Default is 80
- DOMAIN NAME : Assign domain name for your DVR (ex, abc). If the same domain name is assigned, the message will pop up when you click [SAVE].
- User ID & Password : Input User ID and Password.

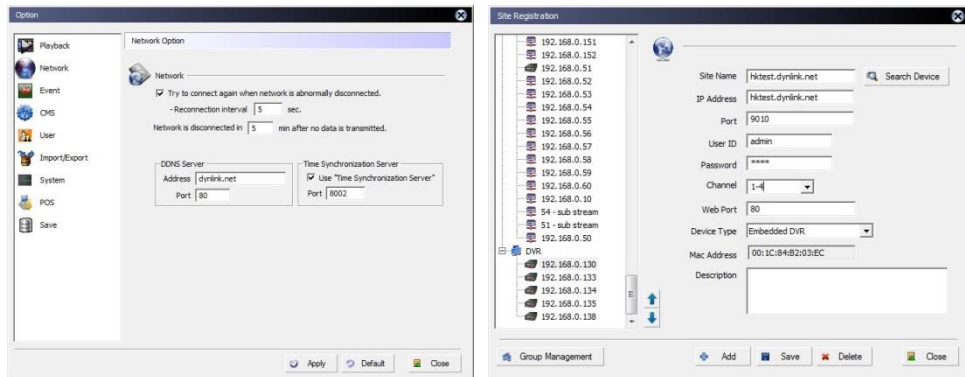
IP MAPPING and EXTERNAL IP

In case of using IP Mapping and Port Forwarding (e.g. using router for internet connection), then please enable both of [Use Device IP Mapping] and [Use External IP].

SETTING AT REMOTE S/W

In the menu of [Option > Setting], input DDNS Name and Port number.

DDNS is “dynlink.net” and Port number is 80, which shall be same as the DDNS setting of DVR.



In the menu of [Site Registration], click ADD button register the DVR with DDNS domain name. It is very important to put “Mac address + dynlink.net” or “Domain Name + dynlink.net” in IP Address (or URL) as below.

For example, if Mac address is “00:1C:84:01:00:02”, then the right IP Address (or URL) in Site Registration shall be “001c84010002.dylink.net”. And if Domain name is “abc”, then the right IP Address (or URL) in Site Registration shall be “abc.dylink.net”.

SETTING AT M/S I/E

User can type mac address + dynlink.net. ex) <http://00231c381f2d.dylink.net>

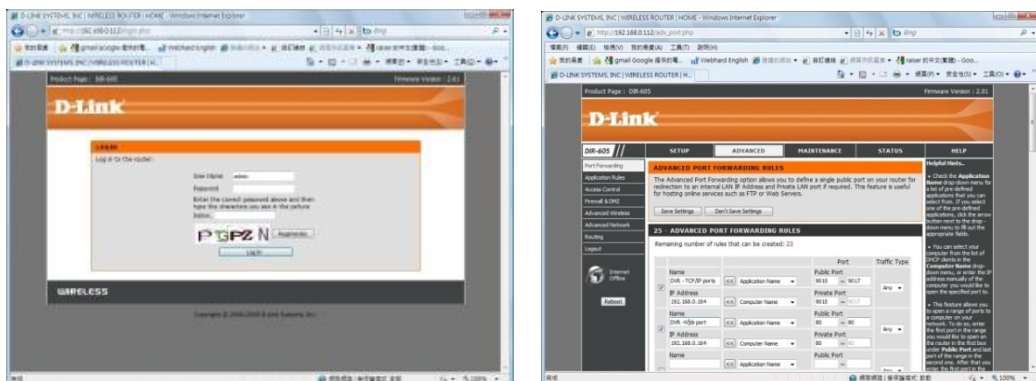
In case of using sub domain name, user can type domain name + dynlink.net.

ex) <http://abc.dylink.net>

ROUTER SETTING (PORT FORWARDING)

If you want to use router for network connection, you are required to do Port Forwarding in your router (both static IP and dynamic IP). The procedure described below is just one of the examples for your reference and the captured figures may differ depending on the model of the router. Please refer to the manual of your router for details.

- 1) Login to your router through M/S IE browser.
- 2) Go to the menu of [ADVANCED > Port Forwarding]



- 3) Do necessary Port Forwarding as below. (TCP Port & Web Port)

- For TCP/IP Port of DVR

If you use 9010 for TCP/IP Port (mentioned as above), then you have to forward Port # 9010 to DVR local LAN IP.

<input checked="" type="checkbox"/>	Name	<< Application Name ▼	Public Port	Any ▼
	DVR - data port		9010 ~ 9010	
<input checked="" type="checkbox"/>	IP Address	<< Computer Name ▼	Private Port	
	192.168.0.164		9010 ~ 9010	

Note : If you change DVR TCP/IP Port to 9020, then you have to open and do Port Forwarding for 9020.

- For Web Port of DVR

If you use 80 for Web Port (mentioned as above), then you have to forward port # 80 to DVR local LAN IP.

<input checked="" type="checkbox"/>	Name	<< Application Name ▼	Public Port	Any ▼
	DVR - web port		80 ~ 80	
<input checked="" type="checkbox"/>	IP Address	<< Computer Name ▼	Private Port	
	192.168.0.164		80 ~ 80	

Note : If you change DVR Web Port to 8080, then you have to open and do Port forwarding for 8080.

DVR needs several ports to be opened for remote image transmission, configuration, time synchronization and etc. Please refer to below port list to make sure that those ports are not blocked by firewall or other network setting.

Protocol	Port	Usage	Remark	Editable	Location
TCP	9010	DVR Data Port (for Remote S/W)	TCP Port	Yes	Network > Network
TCP	8002	DVR Time Sync Service	Need port forward at remote P/C network	Yes	System Info > Date/Time Setting
TCP	8003	Event Notify Socket	Need port forward at remote P/C network	Yes	Network > Notification
TCP	80	Web Service		Yes	Network > Network
TCP	80	DDNS Server		Select	Network > DDNS
TCP	123	NTP Server		Fixed	Network > Network

4.5.3. Notification

REMOTE NOTIFY

The system can notify an alarm message to the IP address of Remote Software P/C over the network.

Select REMOTE NOTIFY to use this function and set IP address & events.



ADD/EDIT/DELECT

User can use these to add/edit/delete IP address of Remote Software PC.

IP ADDRESS

Input the IP address of Remote Software PC which will receive events notification.

PORT

Input Port number which is set at the Remote Software PC. Default is 8003.

EVENT

Select events to be notified. When "ALL" is selected, all of the events will be notified.

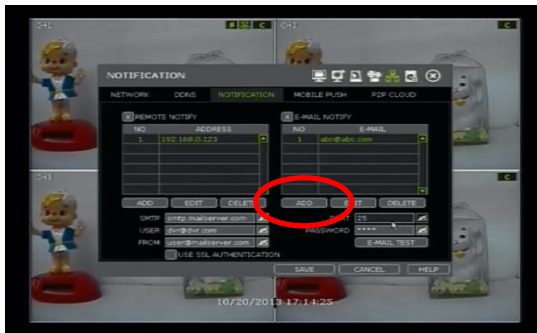
Note Configuration first priority is always on "SCHEDULE" of "RECORD". Thus, the system will not notify alarm message upon motion alarm or sensor even though user ticks the check-box of above event selection, unless user sets the "SCHEDULE" of "RECORD" and "MOTION"/"SENSOR" of "DEVICE" accordingly. For example, If user sets just "Continuous" only in "SCHEUDLE" of "RECORD" and tick "All" check-box of "REMOTE NOTIFY", then the system will not notify alarm message. In this case, user has to set "CONT + MOT", "MOTION", "SENSOR", or "CON + SENS" in SCHEDULE, and set "MOTION"/"SENSOR" in DEVICE to enable REMOTE NOTIFY properly.

Note User can set remote pop-up in Remote S/W (CMS) upon alarm trigger in DVR. In order for Remote Software user to receive an instant pop-up video over network from DVR, DVR user has to tick "SENSOR" or "MOTION ALARM" in above menu. "SENSOR" means the alarm triggered by physical alarm, while "MOTION ALARM" means the alarm triggered by motion detection.

E-MAIL NOTIFY

The system can make a notification to the e-mail address.

Select E-MAIL NOTIFY to use this function and set e-mail address & events.



ADD/EDIT/DELECT

User can use these to add/edit/delete e-mail address.

E-MAIL

Input e-mail address which will receive events notification.

EVENT

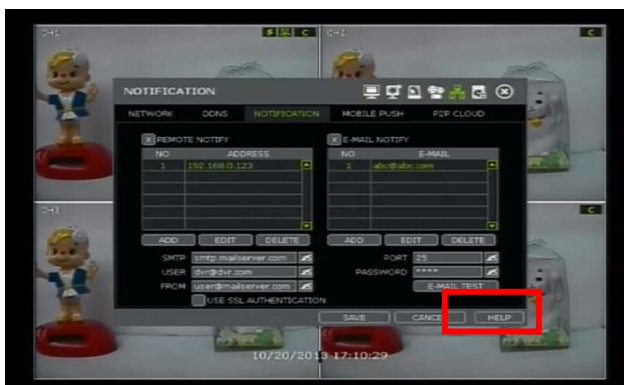
Select events to be notified. When “ALL” is selected, all of the events will be notified.

SENDER Setting(SMTP Setting)

User needs to set sender to send e-mail notification.

- SMTP : Input SMTP server address.
- PORT : Input Port number that will be used for e-mail sending.
- USER : Input User in case the log-in is required to SMTP server.
- PASSWORD : Input Password in case the log-in is required to SMTP server.
- FROM : Input sender's e-mail address.
- E-MAIL TEST : User can check if setting is done properly or not.
DVR sends e-mail and inform you of the result.
 - 1) It may take long depending on the SMTP server's response time.
 - 2) In some cases, SMTP server does not send e-mail even though the test result is OK. Thus, please check at the receiver's e-mail if the e-mail is received.
- USE SSL AUTHENTICATION : In case the SMTP server requires SSL authentication(e.g. Gmail, Yahoo mail, etc.), select this option.

Note Configuration first priority is always on “SCHEDULE” of “RECORD”. Thus, the system will not email alarm message upon motion alarm or sensor even though user ticks the check-box of above event selection, unless user sets the “SCHEDULE” of “RECORD” and “MOTION”/“SENSOR” of “DEVICE” accordingly. For example, If user sets just “Continuous” only in “SCHEUDLE” of “RECORD” and tick “All” check-box of “REMOTE NOTIFY”, then the system will not make email notification. In this case, user has to set “CONT + MOT”, “MOTION”, “SENSOR”, or “CON + SENS” in SCHEDULE, and set “MOTION”/“SENSOR” in DEVICE to enable Email Notification properly.



Note “HELP” button will help you understand how to setup several important settings. For example, if you need help about how to set Notification, click “HELP” button at the right bottom of the menu.

4.5.4. Mobile Push

The system can make an event notification to the mobile device registered in the DVR. Select USE MOBILE NOTIFY to use this function and select event to notify.



Note When the mobile device is registered to the DVR correctly, it shows in the list. Device ID is a unique ID of the mobile device. If you want to delete it, select the device and click “Delete” button. Then, push notification setup in the mobile device will be disabled.

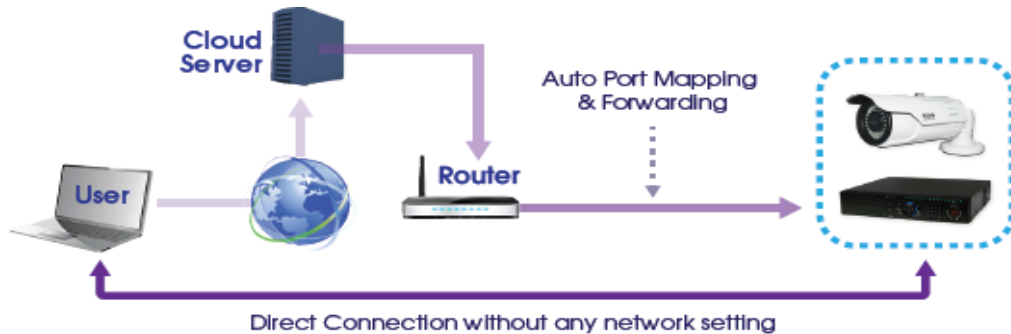
Note

1. Mobile Push Notification function is available with iPhone, iPad & Android phone.
2. Registration of Mobile Push Notification is available when it is applied at the mobile device.
3. Deletion of the list will be available when you click “Delete” button in the DVR menu or when you select disable of the Push Notify function in the mobile device.
4. Maximum number of mobile device to be registered is 50.

- Note**
1. Push Notification function only works when the DVR & mobile device has network connection to internet.
 2. For the detail, please refer to MMS manual.

4.5.5. P2P Cloud

ezP2P™ Cloud Service is a cloud-based video management system without any complicated network setting. Just login to ezP2P™ Cloud Server (www.ezp2p.com) with your own account and enjoy thumbnail preview and instant live monitoring.



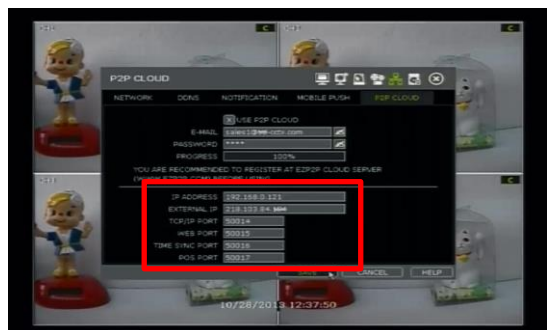
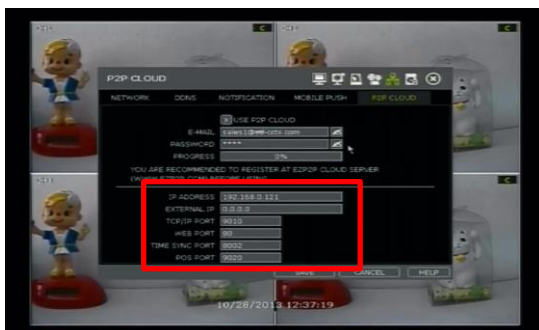
REGISTRATION(in the ezP2P™ Cloud Server)

In order to use this function, user needs to register the User ID & password in the ezP2P™ Cloud Service site(www.ezp2p.com).



REGISTRATION(of the DVR to the ezP2P™ Cloud Server)

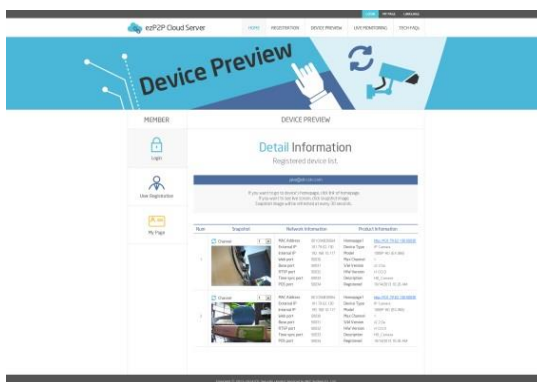
Select "USE P2P CLOUD SERVER" and input E-MAIL & PASSWORD which were registered in the ezP2P™ Cloud Server.



Once the “Save” is clicked, you can see the completion rate on “Progress Bar”. After completion, auto port forwarding result will be shown in the below part of the screen..

CONNECTION(from the ezP2P™ Cloud Server)

Go to the ezP2P™ Cloud Service site (www.ezp2p.com) and login. Then, the registered site list with snapshot image & detail information will be shown as below picture.



Caution P2P Cloud function may not be available, in case that;

- 1) Router doesn't support UPnP function or UPnP function is OFF.
- 2) Firewall is set in the network.
(Port no. 50,000 or higher should be opened.)
- 3) the network condition doesn't support it due to the other issues.

If P2P Cloud function is not supported, please consult your network administrator or your internet service provider.

4.5.6. ezLink™

ezLink™ is the function that user can easily connect to the DVR from the Web Browser which is in the same network.

Just with the Mac address of the DVR, user can see the instant live monitoring of the DVR.
([http://\[Mac Address\].ezp2p.net](http://[Mac Address].ezp2p.net))

For example, if the Mac address is “00:1C:84:01:00:02”, then user can input the address as “001c84010002.ezp2p.net”

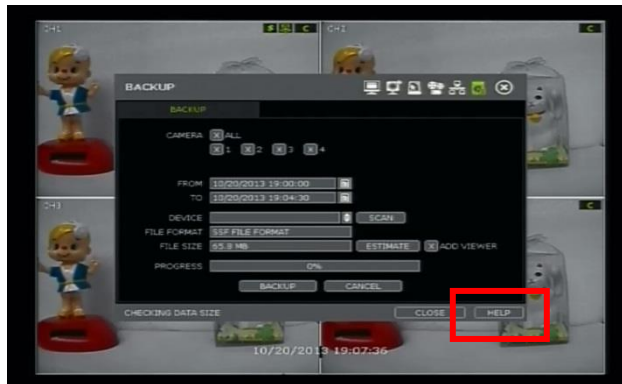
4.6 Backup

4.6.1. Manual Backup

User can archive video clip recorded for certain period for a selected channel or channels as below picture. Connect an appropriate USB memory device like USB thumb drive, built-in CD or USB ODD burner and press “SCAN” button to get the system recognize it before actual archiving. Necessary file size will be shown before burning.

User can leave ticking in the check-box of “ADD VIEWER” to automatically put in an executable viewer file of EXE format in order to help user play the video clip without installing program in

his/her computer.



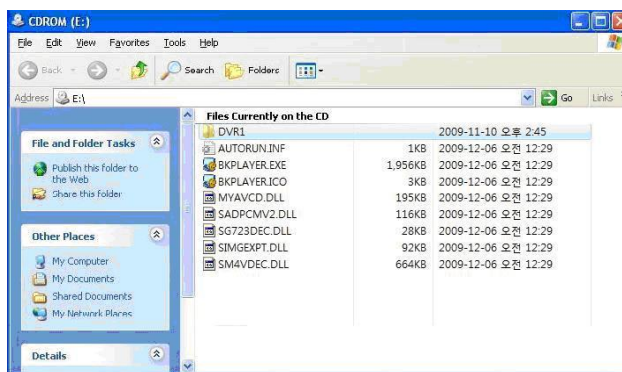
Note It is recommended to use built-in CD/DVD burner or well-known major brand of USB thumb drives formatted by FAT/FAT32 for proper backup.

- 1) The system does not detect external HDD due to different format type.
- 2) It is not allowed to use the partitioned and/or password-encoded USB memory

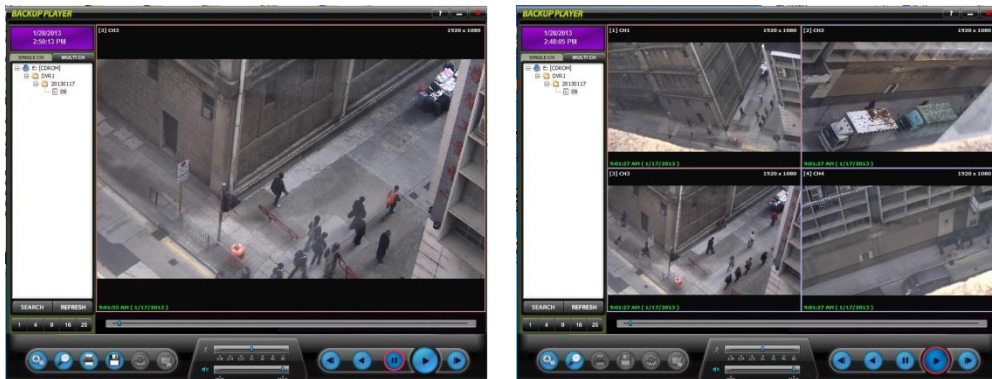
Note “HELP” button will help you understand how to setup several important settings. For example, if you need help about how to set Backup, click “HELP” button at the right bottom of the menu.

4.6.2. Backup Video Retrieve

After archiving, there would be multiple files created as the picture below if “ADD VIEWER” was selected. User can double click “MultiBackupPlayer.exe” file and open the video data file (SSF format) in the folder of date. The folder is named by the date recorded.



User can drag and drop a SSF file (Video data file) to the Single CH mode of MultiBackup Player to begin video play. In case of Multi CH playback, click “Search” to browser the SSF file folder.

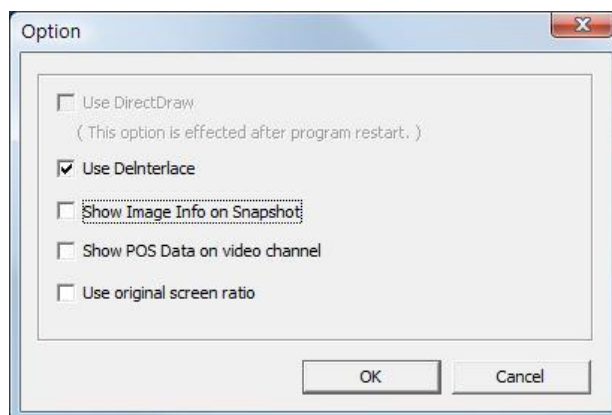


User can print out, capture a still image, and zoom-out by using the icons on the bottom-left of the player window.

OPTION MENU

Various settings for DirectDraw, Show Image info on snapshot, Show POS data and Use original screen ratio are available in OPTION window.

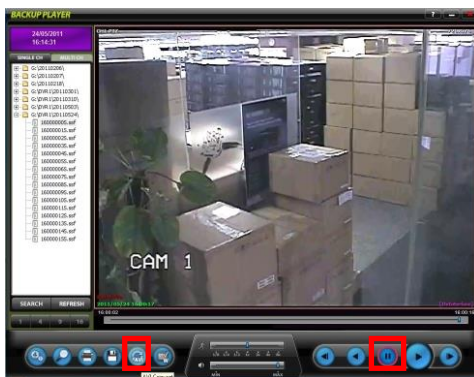
- **Use DirectDraw**
There are some PCs that do not support “Direct Draw”. In this case, user can uncheck the DirectDraw check-box in the “Option” menu.
- **Show Image Info on Snapshot**
Image information can be shown on snapshot.
- **Show POS Data on video channel**
POS data can be shown on video channel.




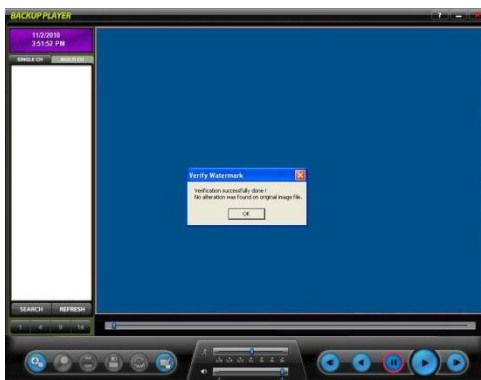
WATERMARK Verification on AVI File

User can convert this backup file from SSF format to AVI format, so that user can playback AVI file in ordinary Window Media program.

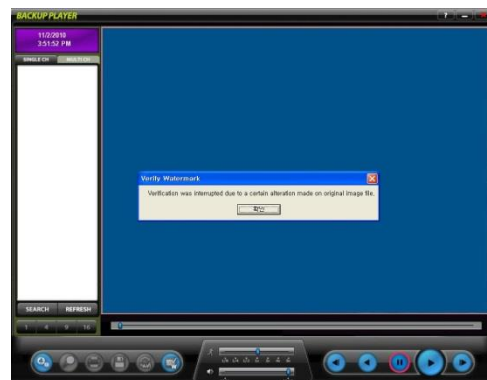
- 1) Playback the SSF file in Single CH mode, click [Pause] icon.
- 2) Then, click [AVI Convert] icon.
- 3) Define the start time and end time.





When playback AVI video clip in BackupPlayer, user can verify whether the AVI file has been altered or not by pressing “Watermark” button 



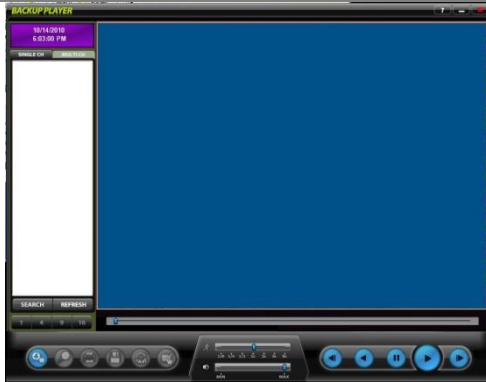
No alteration was found
on original **AVI** video clip.



AVI video clip has
been altered.

Note MultiBackup player supports two modes. ( , )

- 1) Single-Channel Mode
 - > It shows SSF files in a selected folder.
- 2) Multi-Channel Mode
 - > It shows SSF files and folders in the PC.



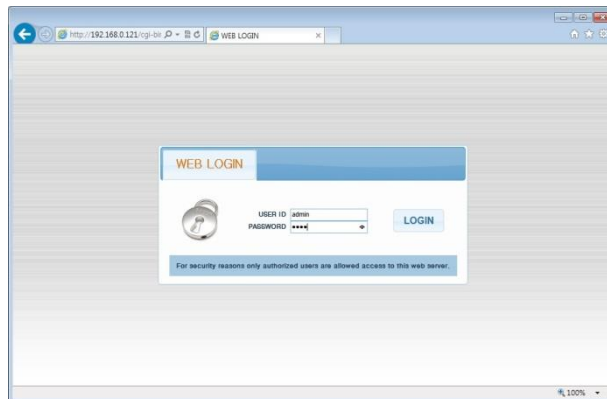
5. Web Surveillance through M/S IE

The system has built-in web server by itself.

Thus, user can be connected to the system by ordinary web-browser via network for live monitoring, playback or remote configuration without installing any additional software.

5.1 Web Login

User is required to put the right IP address in the web browser after getting the web port available by router. When login page shows up, input user ID and password. Default user ID and password are “admin” and “1234”. After login, download & install Active-X file.



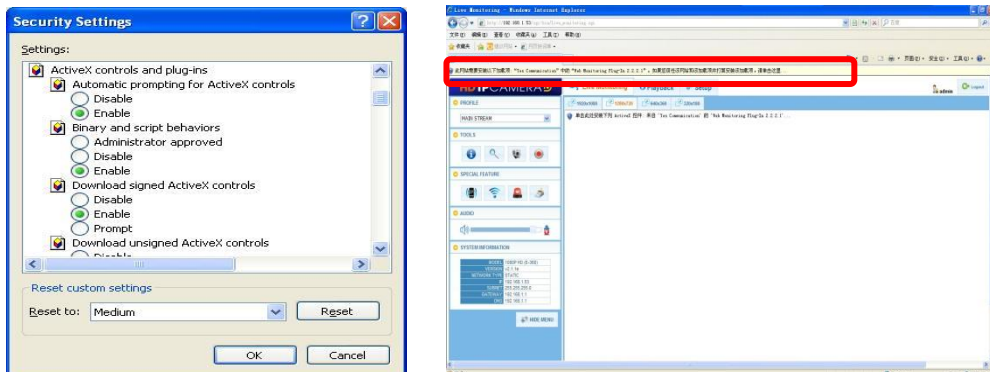
Active-X Installation

1. If the P/C doesn't have Active-X installed, installation guide message is automatically shown as below to request to download the latest version of Active-X file.
2. Click installation guide message and install Active-X.



3. In order to download Active-X file without any problem, “Security Setting” of IE web browser has to be properly made. Select “Tools > Internet Options > Security > Internet > Custom Level” in IE menu and enable all Active-X controls and plug-in as below.

4. If right-positioned screen is shown, Active-X installation is done successfully.

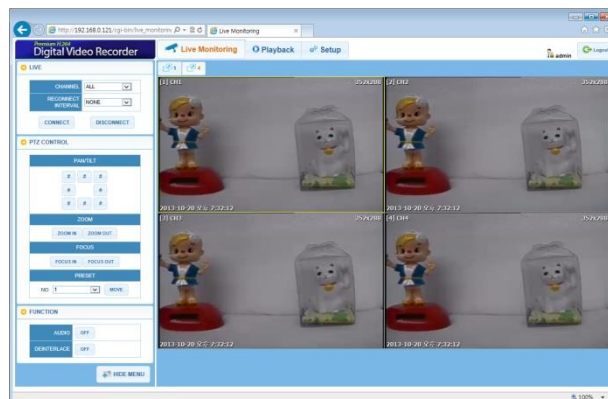


5.2 Web Monitoring

LIVE MONITORING window will be shown as default.

User can select other menus such as PLAYBACK and SETUP, or LOGOUT.

When user enters into live monitoring, you can directly see the image after install Active-X.



LIVE

User can select channel to connect and set interval for reconnection.

PTZ CONTROL

User can control Pan/Tilt, Zoom In/Out, Focus In/Out and Preset for the channel that is connected to PTZ camera.

select channel to connect and set interval for reconnection.

FUNCTION

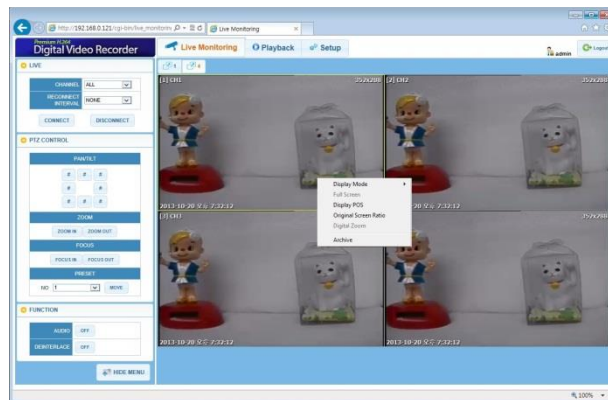
User can select On/Off for audio and deinterlace function.

HIDE MENU/SHOW MENU

If user doesn't want to show the menu in the left-side, it can be hidden by "HIDE MENU" button. On the contrary, hidden menu can be shown by "SHOW MENU" button.

POP-UP MENU

When the right button of the mouse is clicked, various options such as Display Mode, Full Screen, Display POS, Original Screen Ratio, Digital Zoom and Archive are available.



5.3 Web Playback

User can remotely playback the DVR images by clicking “PLAYBACK” button in on the top of the window.



PLAYBACK TIME

Select the date and time and click “GO” button.

PLAYBACK ICON

Play/Pause is toggled and playback speed is shown on the right box.

PLAY DST

Check this box to play overlapped images during DST (Daylight Saving Time) period. For details, please refer to Section 3.7 (DST Setting and Image Playback)

INTELLI-SEARCH BAR

User can move the red-vertical line to the time that user wants to search.

The colors of the time bar are different by each recording mode. Please, refer to Section 4.3.2 for details on colors.

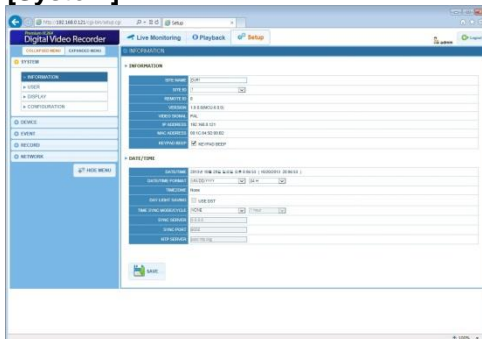
5.4 Setup

[Menu of Setup]

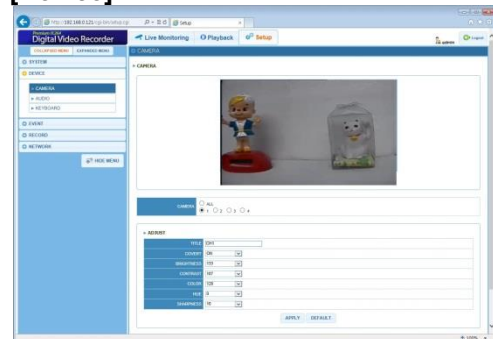
Main Classification	Sub Classification
SYSTEM	INFORMATION
	USER
	DISPLAY
	CONFIGURATION
DEVICE	CAMERA
	AUDIO
	KEYBOARD
EVENT	SENSOR
	MOTION ALARM
	EXTRA ALARM
RECORD	CAMERA
	SCHEDULE
	QUICK SETUP
NETWORK	NETWORK
	DDNS
	NOTIFICATION

After log in with the right ID and password, user can make various configuration in Web Setup window as below. This Web Setup is only available to “admin” account.

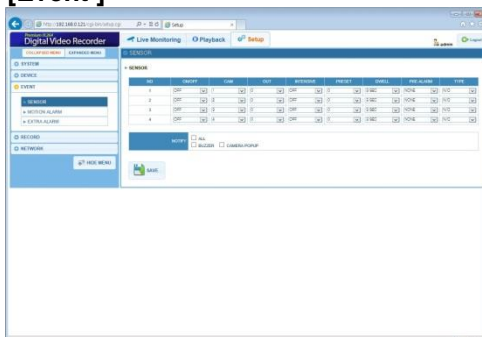
[System]



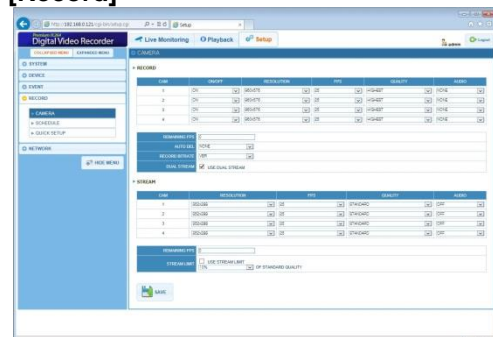
[Device]



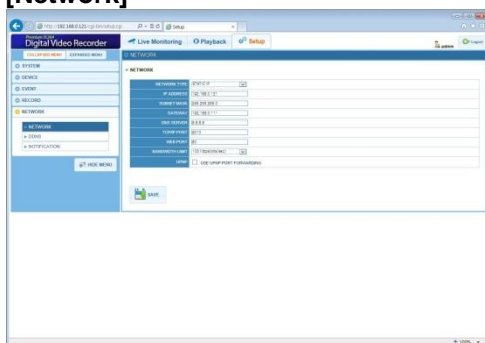
[Event]



[Record]



[Network]



Note This DVR system has its own built-in web server. Therefore, this web CGI screen is directly supported from the built-in web server of DVR regardless of Internet connection.

Note System Reboot enables user to reboot the system without any change of the setup. User can use this function when the network is disconnected due to abnormal operation of the system and try to reconnect. However, IP number assigned to the system may be changed in case of DHCP mode.

6. Q & A

1. DVR doesn't record images in sensor mode and/or motion mode.

- 1) It records images only when there is an event for the corresponding mode.
- 2) Please check if the setting is correctly done at the menu of [Event > Sensor], [Event > Motion Alarm], and [Record > Schedule].

2. There is a HDD installed but "No HDD" icon() is still shown on the screen.

- 1) Please check the cable connection of the HDD again.
- 2) If you can see the HDD list at [System > HDD] but the capacity indicates "0", it means that the HDD requires format.

3. There is nothing displayed on the HDMI / VGA monitor though electric power is supplied to DVR.

- 1) Please check if the power is supplied properly. When the power is supplied, you can hear the noise from FAN and HDD operation.
- 2) Please check the HDMI / VGA cable connection with the DVR. Remove all the cable connections, except for the monitor cable, and then apply power to the DVR again and check booting status.
- 3) Please check if the option [VGA] is selected at the rear panel of DVR.
- 4) In case that the display screen is stopped at logo screen, please contact your dealer or distributor.

4. How to make PPPoE connection (xDSL, cable and so on) ?

- 1) There is no function to log-in at the DVR.
- 2) Please use the router which supports PPPoE log-in.

5. Is it necessary to open the port when using DDNS (dynlink.net, dyndns.org) ?

Yes, it is.

DDNS is the function to let remote software acknowledge the changed address of the DVR (dynamic IP provided by ISP) or to allow connection to the DVR by domain (domain.dynlink.net) without memorizing IP.

6. Remote software connection to the DVR works fine but WEB connection doesn't work.

- 1) Some ISP blocks port number 80. Please try again after changing WEB port. (8080 is recommended.)
- 2) Please check whether the port number 80 is opened or not.

7. Image is not shown after login at WEB monitoring

TCP Base port should be opened. Default of TCP base port is 9010.

8. Image on remote software is suddenly disappeared after displaying for a short time.

- 1) Some ISP restricts upload data/traffic volume. Please contact your ISP.
- 2) Upload traffic restriction can be easily checked with the following steps.
 - > Turn off the power of Modem & Router.
 - > After some time (1~5minutes), turn on the power of Modem first and then Router.
 - > After reconnection, if it is disconnected again after a short time (in a similar period later), it means that the ISP restricts upload traffic.

9. Backup or firmware upgrade through USB memory stick cannot be made though it is detected by the DVR.

- 1) USB memory stick should be formatted by FAT or FAT 32.
- 2) It is not allowed to use the partitioned and/or password-encoded USB memory

10. No firmware upgrade by using CD.

- 1) DVR detects the files only when they are in root directory.
Files in sub folder cannot be detected.
- 2) It is recommended to upgrade firmware with USB memory stick.

11. Time sync through NTP server doesn't work.

NTP server requires DNS server address. Please check if DNS server address is correct at [Network] tab.

12. E-mail transmission doesn't work in using E-mail notify function.

- 1) E-mail notify function works based on SMTP service.
Please check if the sending mail address is correct and if the mail server supports SMTP service.
- 2) In case using SMTP service which is based on TLS authentication (including SSL) such as gmail and yahoo mail, please enable [Use SSL Authentication at [Notification] tab.
- 3) SMTP service is provided based on DNS. Please check if the DNS server address is correct at [Network] tab.

>>>>> The End <<<<<<